

REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. The present amendment is being made to facilitate prosecution of the application.

I. STATUS OF THE CLAIMS AND FORMAL MATTERS

Claims 1, 3 and 5-12 are pending. Claims 1 and 9 are independent. Claims 1, 3 and 5-9 are hereby amended. Claims 2 and 4 are canceled, without prejudice or disclaimer of subject matter. No new matter is added by these amendments. Support for the amended recitations in the claims is found throughout the specification. Changes to claims are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103, or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicant is entitled.

The drawings were objected to under 37 CFR 1.83(o). Specifically, the Examiner stated that descriptive legends are required for Figs. 6, 7, 9 and 11. Applicant has added descriptive legends to Figs. 6, 7, 9 and 11 (e.g., for elements 20, 22, 32, 40, 44, 46, 60, 62, 66, 70, 71, 76, 78, 81, 100, 102, 104, 110, 128 and 130). Replacement Sheets are attached at the end of this amendment. Applicant therefore respectfully requests that the objection to the drawings be withdrawn.

The specification was objected to. Specifically, the Examiner objected to page 3, line 11 and page 10, line 27. Applicant has amended these portions of the specification in

accordance with the Examiner's suggestions. Applicant therefore respectfully requests that the objection to the specification be withdrawn.

Claims 5 and 6 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicant submits that these claims now depend, either directly or indirectly from one of the independent base claims noted above, and as such are allowable without being rewritten in independent form.

II. REJECTION UNDER 35 U.S.C. § 112

Claims 2, 3 and 5-7 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. Specifically, the Office Action pointed out the phrase "said shift register" in claim 1 has insufficient antecedent basis. Applicant has amended claims 3 and 5-7 and canceled claim 2, thereby obviating the rejection. Applicant respectfully requests the rejection under 35 U.S.C. § 112, second paragraph be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. §102 and 103

Claim 1 was rejected under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 5,418,907 to Ohki.

Claims 1, 4 and 9-12 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by U.S. Patent No. 6,707,937 to Sobel et al.

Claims 2, 3 and 7 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sobel et al. in view of U.S. Patent No. 6,133,953 to Okada.

Claim 8 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Sobel et al.

Claim 1 recites, *inter alia*:

“An image processor...comprising...

a control processor, said register store being arranged in operation to receive said video signal and to provide pixels of said received video signal, under control of said control processor to an interpolator, selected register elements being connected to said interpolator to provide said pixels of said received video signal for interpolation, each of said register elements being arranged to store a pixel of said received video signal and each is connected to a plurality of other register elements and is configurable under control of said control processor to feed the pixel stored in said register element to one of said plurality of other register elements in accordance with a temporal reference;

said interpolator being coupled to said register store and arranged in operation to generate said interpolated video signal by interpolating said pixels provided by said register store, wherein said control processor is operable to detect a feature of said image having both vertical and horizontal components, to control the configuration of said register elements to provide the input pixels associated with said feature to said interpolator to interpolate the feature of said image having both the vertical and the horizontal components.” (emphasis added)

As understood by Applicant, U.S. Patent No. 5,418,907 to Ohki relates to a multi-port memory with a memory array having a plurality of memory cells arranged in a matrix fashion. The memory array includes first signal lines for selecting rows of the plurality of memory cells. The memory array further includes second signal lines for selecting columns of the plurality of memory cells. The multi-port memory further includes a first decoder for generating select signals for selecting the first signal lines. The multi-port memory further includes a plurality of input or output ports connected to the second signal lines.

As understood by Applicant, U.S. Patent No. 6,707,937 to Sobel et al. relates to a method and apparatus for interpolating color image information. One or more image data values

for a portion of a digital image in a vicinity of a target pixel are received and stored in a local array. A processor determines whether there is an edge in the vicinity of the target pixel based on the data values in the local array. If there is not an edge in the vicinity of the target pixel, then long scale interpolation is performed on the image data values in the local array, in order to result in interpolating color information that is missing from the image.

As understood by Applicant, U.S. Patent No. 6,133,953 to Okada relates to a CCD portion that is driven by a driving circuit for separately reading out all pixels. Data for 4 lines are input in parallel to a two-dimensional register array by scanning line delay devices, and interpolation processing is performed for each of color signals G, Mg, Cy and Ye based on data corresponding to pixels in a 4 row by 4 column matrix. Color difference signal generation circuit performs a color separation processing based on thus interpolated color signals.

The Examiner argues that it would be obvious to combine the register store providing a plurality of register elements and an interpolator as disclosed in Sobel with the arrangement shown in Okada in which a clock signal is used to clock in the video pixels of an input image. However, claim 1 as newly submitted is distinguished from the combination of Okada and Sobel by at least the feature that the control processor is arranged to configure the register elements to feed the pixels stored in the register disclosed in the application as originally filed on page 4, lines 18-29, providing the register elements so that they are connectable under the control of the control processor to a plurality of other register elements and feeding the pixel stored in each register element to one of the other register elements under control of the control processor provides an advantageous arrangement.

The reason for this is because the pixels may be shifted through the adaptable register store to the effect of providing a feature of the image having horizontal and vertical

components to an interpolator for interpolation. As such, the feature to be interpolated can be provided without requiring a frame store. Okada in column 7 discloses that a clock signal is used with the two-dimensional register array. However, Okada merely discloses that the clock signal in combination with delay elements feed the input video signal to the two-dimensional array in accordance with the clock signal.

In contrast there is no disclosure of the control processor configuring the register elements to the effect of feeding the pixels in each register element to one of the plurality of register elements to which it is connected in accordance with a temporal reference. Thus the control processor can shift the pixels to a plurality of other register elements in the array in accordance with the temporal reference, obviating a requirement for a frame store. The skilled person could therefore not arrive at the invention according to claim 1 from a combination of Sobel and Okada.

Applicant submits that Ohki, Sobel and Okada - taken either alone or in combination - do not teach or suggest the above-identified features of claim 1. Specifically, Applicant submits that there is no teaching or suggestion of a control processor...selected register elements being connected to the interpolator to provide the pixels of the received video signal for interpolation, each of the register elements being arranged to store a pixel of the received video signal and each is connected to a plurality of other register elements and is configurable under control of the control processor to feed the pixel stored in the register element to one of the plurality of other register elements in accordance with a temporal reference, as recited in claim 1.

Furthermore, Applicant submits that there is no teaching or suggestion of an interpolator being coupled to a register store and arranged in operation to generate an

interpolated video signal by interpolating pixels provided by the register store, wherein the control processor is operable to detect a feature of the image having both vertical and horizontal components, to control the configuration of the register elements to provide the input pixels associated with the feature to the interpolator.

Therefore, Applicant submits that independent claim 1 is patentable.

For reasons similar to or somewhat similar to those described above with regard to independent claim 1, amended independent claim 9 is also believed to be patentable.

Therefore, Applicant submits that independent claims 1 and 9 are patentable.

IV. DEPENDENT CLAIMS

The other claims are dependent from one of the independent claims, discussed above, and are therefore believed patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

CONCLUSION

In the event the Examiner disagrees with any of statements appearing above with respect to the disclosure in the cited reference or references, it is respectfully requested that the Examiner specifically indicate those portions of the reference or references, providing the basis for a contrary view.

Please charge any additional fees that may be needed, and credit any overpayment, to our Deposit Account No. 50-0320.

In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable and Applicant respectfully requests early passage to issue of the present application.

Respectfully submitted,

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